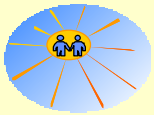

Clean Energy for the Planet

Strategic Thinking for Distributed Generation

Where Are We Now & Where Should We Be Going?

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DG is growing! Will it take over?

- So far, DG has been growing, but slowly
- Are DG applications moving faster through the system?
- A few horror stories continue to be told
- What is the real picture?

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Snapshot of SCE DG Applications Since Jan 2001

Status	No. Applic.	Megawatts	Largest	Comments
1: Eng. Review	25	228.5	97, 67, 19, 10	Largest in late 01, 02
2. Review Complete	3	9.1	6	All over the map
3. Contract to Customer	20	36.2	3.5	All over the map
4. Contract Signed	4	10.3	10	3 to 9 months
5. Approved-On Line	10	33.2	12	Average 4 months, some < 2 wks!

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Technology Issues

- The Companies offering DG are Changing: New players are entering and others are leaving
- Microturbine deployments are later than projected but more rapid than other technologies
- Fuel Cells continue to have public policy support but are not yet commonplace
- IC engines and large gas turbines continue to be the workhorses of the industry
- PV does well with hefty supports but is not yet too cheap to meter

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SCE DG Applications Technology Split

Technology	Number	Megawatts	Comments
Diesel Engines	10	81	Emergency Backup
IC Engines Nat Gas	18	30	Generally Cogen
Combustion Turbines	4	194	MOAG
Microturbines	16	3	Mixed bag
Fuel Cells	1	0.23	Cogen

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Drivers: Why Are People Installing DG?

- Emergency Backup
- Cogen
- Primary Generation
- Consume Free Fuel
- Net Metering and Self-Generation Programs
- NOx abatement
- PM10 abatement

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What About DG's High-Value Grid Benefits?

- PG&E had the Kerman Substation PV study
- SCE had Solar Neighborhoods
- No evidence that DG is now being installed to gain these benefits
- The primary reasons for today's DG appear to be energy security and energy savings
- Public Policy support is a close second

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Public Policy and Regulations: Rule 21 and IEEE 1547 interconnection Efforts

- Rule 21 was revised and is being improved as we speak; it has proven reasonably effective so far
- IEEE 1547 continues to be hotly debated by people of goodwill
- The barriers are coming down, partly because of the new Rule but mostly because of improved communications resulting from the dialog
- DG is high on policy maker's lists. DOE has a DER Division, USAID is pushing DG globally, several states have legislation supporting DG
- Environmentalists seem to like DG
- It is not intuitively obvious why DG is so popular

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What Strategies Should be Pursued?

- Continue to improve Rule 21, especially the effort to certify Interconnection systems
- Level the playing field for various technologies…rather than specify supports for just fuel cells or solar, specify emissions requirements and let the technologies compete to meet them
- Support consumption of damaging emissions for generating power (such as the SCAQMD's recent purchase of microturbines to reduce NOx from flares or PM10 from Diesels)
- Continue to provide incentives to buy down the cost of promising but clean technologies
- Bring the Utilities inside the tent by giving them an incentive to support DG